AMENDMENTS TO THE CLAIMS

1. (Withdrawn) A binary search method for suppressing a carrier in a quadrature modulator, comprising:

applying a set of four correction signal pairs to a quadrature modulator and detecting a first set of four output signals;

identifying an optimum correction signal pair from among the set of four correction signal pairs;

using the optimum correction signal pair to determine another set of four correction signal pairs;

repeating the applying, identifying, and using steps for a predetermined number of times to produce a final correction signal pair; and

using the final correction signal pair to suppress a carrier in the quadrature modulator.

2. (Withdrawn) The binary search method of claim 1, further comprising creating a search area, the search area having a set of four search area quadrants.

3. (Withdrawn) The binary search method of claim 2, wherein each of the set of four correction signal pairs corresponds to a center of a respective search area quadrant.

4. (Withdrawn) The binary search method of claim 2, wherein creating the search area comprises determining a maximum DC offset.

5. (Withdrawn) The binary search method of claim 4, wherein creating the search area comprises creating a step as a function of the maximum DC offset.

6. (Withdrawn) The binary search method of claim 2, wherein creating the search area comprises creating an unrotated search area.

7. (Withdrawn) The binary search method of claim 2, wherein creating the search area comprises creating a rotated search area.

8. (Withdrawn) The binary search method of claim 1, wherein identifying the optimum correction signal pair comprises identifying a correction signal pair that yields the smallest output signal.

9. (Withdrawn) The binary search method of claim 1, wherein applying the optimum correction signal pair to the quadrature modulator comprises applying a signal of the first optimum correction signal pair to an in-phase channel and applying a second signal of the optimum correction signal pair to a quadrature-phase channel.

10. (Withdrawn) A program storage device, readable by a machine and tangibly embodying a representation of a program of instructions adapted to be executed by said machine to perform the method of claim 1.

11. (Currently Amended) A method for suppressing [[a]] carrier feedthrough in a quadrature modulator, the method comprising:

performing a first search ~~method~~ to determine a pair of receiver path correction signals;

performing ~~the~~ a second search ~~method~~ to determine a pair of transmitter path correction signals; and

using the pairs of receiver path and transmitter path correction signals to suppress [[a]] carrier feedthrough ~~signal~~ in [[a]] the quadrature modulator.

12. (Currently Amended) The method of claim 11, where using the pairs of receiver path and transmitter path correction signals comprises:

subtracting a first receiver path correction signal from a first downconverter output signal;

subtracting a second receiver path correction signal from a second downconverter output signal;

subtracting a first transmitter path correction signal from a first upconverter input signal; and

subtracting a second transmitter path correction signal from a second upconverter input signal.

13. (Currently Amended) The method of claim 11, where performing at least one of the first and second searches ~~the search method~~ includes performing an algorithm selected from the group consisting of: a rotated binary search, an unrotated binary search, and a hybrid search ~~method~~.

14. (Currently Amended) The method of claim 11, further comprising operating the quadrature modulator in full-duplex mode.

15. (Original) A program storage device, readable by a machine and tangibly embodying a representation of a program of instructions adapted to be executed by said machine to perform the method of claim 11.

16. (Currently Amended) A method for suppressing [[a]] carrier feedthrough in a quadrature modulator comprising a transmitter path and a receiver path, the method comprising:

performing, during a first mode of operation, a first calibration ~~method~~ to determine a pair of receiver path correction signals;

performing, during a second mode of operation following the first mode of operation, a second calibration ~~search method~~ to determine a pair of transmitter path correction signals using the receiver path of the quadrature modulator; and

using, during a third mode of operation following the second mode of operation, the pairs of receiver path and transmitter path correction signals to suppress [[a]] carrier feedthrough ~~signal~~ in [[a]] the quadrature modulator.

17. (Currently Amended) The method of claim 16, where using the pairs of receiver path and transmitter path correction signals comprises:

subtracting a first receiver path correction signal from a first downconverter output signal;

subtracting a second receiver path correction signal from a second downconverter output signal;

subtracting a first transmitter path correction signal from a first upconverter input signal; and

subtracting a second transmitter path correction signal from a second upconverter input signal.

18. (Currently Amended) The method of claim 16, where performing at least one of the first and second calibrations ~~calibration method~~ includes performing a feedback DC calibration ~~method~~.

19. (Currently Amended) The method of claim 16, where performing at least one of the first and second calibrations ~~search method~~ includes performing a binary search ~~method~~.

20. (Currently Amended) The method of claim 16, further comprising operating the quadrature modulator in full-duplex mode.

21. (Original) A program storage device, readable by a machine and tangibly embodying a representation of a program of instructions adapted to be executed by said machine to perform the method of claim 16.

22. (Currently Amended) An apparatus for suppressing [[a]] carrier feedthrough in a quadrature modulator, the apparatus comprising:

a first pair of summers;

an upconverter circuit coupled to the first pair of summers, each of the first pair of summers being coupled to a first quadrature channel of the quadrature modulator;

a multiplexer coupled to the upconverter circuit, to a ground, and to an RF front end;

a downconverter circuit coupled to the multiplexer;

a second pair of summers coupled to the downconverter circuit, each of the second pair of summers being coupled to a second quadrature channel of the quadrature modulator; and

a correction circuit coupled to the first and second pairs of summers, the correction circuit performing a first correction method to determine a pair of receiver path correction signals, performing a second correction method to determine a pair of transmitter path correction signals, and using the pairs of receiver path and transmitter path correction signals to suppress [[a]] carrier feedthrough ~~signal~~ in [[a]] the quadrature modulator.

23. (Currently Amended) The apparatus of claim 22, the correction circuit ~~further~~ comprising:

a pair of [[or]] averaging circuits coupled to the first pair of summers;
a pair of absolute value circuits coupled to the pair of averaging circuits;
a summer coupled to the pair of absolute value circuits; and
a search circuit coupled to the summer.

24. (Currently Amended) The apparatus of claim 23 [[22]], the search circuit comprising a binary search circuit.

25. (Currently Amended) The apparatus of claim 23 [[22]], further comprising a feedback DC calibration circuit coupled to the pair of averaging circuits.

26. (Original) The apparatus of claim 22, further comprising a control circuit coupled to the correction circuit and to the multiplexer.

27. (Currently Amended) The apparatus of claim 26 [[22]], further comprising a program storage device coupled to the control circuit.

28. (Currently Amended) An integrated circuit for suppressing [[a]] carrier feedthrough in the [[a]] quadrature modulator comprising the apparatus of claim 22.

29. (New) The method of claim 11, where the first and second searches use the same algorithm.

30. (New) The method of claim 16, where the first and second calibrations use the same algorithm.